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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,541	10/25/2005	Hiroshige Hirano	2005_1640A	7574
52349	7590	01/25/2008	EXAMINER	
WENDEROTH, LIND & PONACK L.L.P. 2033 K. STREET, NW SUITE 800 WASHINGTON, DC 20006				NGUYEN, JOSEPH H
ART UNIT		PAPER NUMBER		
		2815		
MAIL DATE		DELIVERY MODE		
		01/25/2008 PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/554,541	<b>Applicant(s)</b> HIRANO, HIROSHIGE
	<b>Examiner</b> Joseph Nguyen	<b>Art Unit</b> 2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on \_\_\_\_.

2a)  This action is FINAL.      2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-15 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-15 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 25 October 2005 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)  All    b)  Some \* c)  None of:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 7/16/07, 2/2/06.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_.

## DETAILED ACTION

### ***Drawings***

Figures 25 and 26 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Takenaka (US Patent No. 6,339,008).

Regarding claims 1-4, Takenaka discloses a ferroelectric memory device having plural memory cells each composed of a memory cell transistor and a memory capacitor and in particular in figure 1e the widths of the upper electrode 9 and the lower electrode 4 of the respective memory cell capacitor constitute are narrower than that of the ferroelectric layer 8; wherein the width of the upper electrode and the width of the lower electrode are substantially the same, and the position of the upper electrode in the width direction and the position of the lower electrode in the width direction substantially aligns with each other. Also see columns 3-6.

Claims 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2000-294743.

Regarding claims 5-6, JP 2000-294743 shows a ferroelectric memory device comprising all the structure set forth in claims 5-6, in particular in figure 4c a position of one edge of the upper electrode 4' aligns with a position of an edge of the ferroelectric layer 3', and the other edge of the upper electrode is located at an inner position with relative to the ferroelectric layer wherein a position of one edge of the lower electrode 2' substantially aligns with a position of one edge of the upper electrode 4'. Also see the English Translation.

Claims 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by Fukuzumi et al. (US Patent No. 6,548,844).

Regarding claims 11-14, Fukuzumi et al. discloses the ferroelectric device comprising all the structures set forth in claims 11-14, in particular in figure 13c the lower electrode 2 of the respective memory cell capacitor is an electrode having a groove type structure that is independent for each memory cell capacitor wherein a groove formed in the lower electrode extends along a direction that is parallel to the direction along which the upper electrode extends 4; and the lower electrode having the groove type structure comprising a first lower electrode section (bottom portion of element 2) in a plane shape that constitutes a bottom part of the groove, and a second lower electrode section (side portion of element 2) that constitutes side surface parts and circumference parts of the groove.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2000-294743.

Regarding claim 7, JP-2000-294743 shows substantially all the structures set forth in claim 7 except one edge of the lower electrode being located at an inner position with relative to the ferroelectrode layer. However, *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) the court held that changing the shape was merely a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed lower electrode was significant. (See MPEP 2144.04, page 2100-138, Rev, 5 August 2006). Therefore, it would have been obvious at the time of the present invention to modify JP\_2000-294743 by including one edge of the lower electrode being located at an inner position with relative to the ferroelectrode layer so as to reduce the size of the lower electrode because as stated above, changing the shape involves only routine skill in the art.

Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2000-294743 in view of Fukuzumi et al.

Regarding claim 8, JP-2000-294743 shows substantially all the structures set forth in claim 8 except the lower electrode having a groove type structure. However, Fukuzumi et al. discloses in figure 13c the lower electrode 2 having a groove type structure so as to form a smaller ferroelectric capacitor and thus increase density of the memory cell in a semiconductor device (column 1, lines 20-25). In view of such teaching, it would have been obvious at the time of the present invention to modify JP-2000-294743 by including the lower electrode

having a groove type structure so as to form a smaller ferroelectric capacitor and thus increase density of the memory cell in a semiconductor device.

Regarding claims 9-10, JP-2000-294743 and Fukuzumi et al. together disclose all the structure set forth in claims 9-10.

***Conclusion***

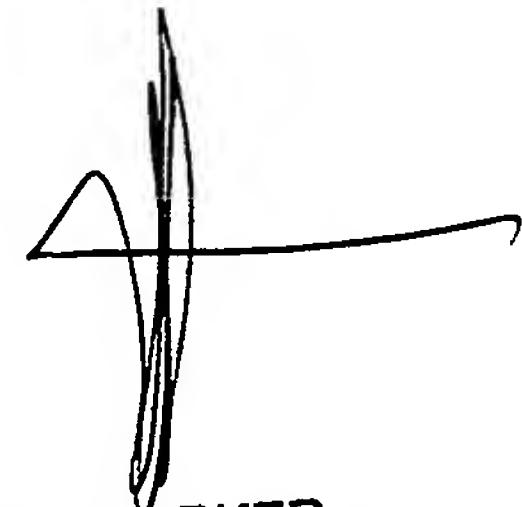
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (571) 272-1734. The examiner can normally be reached on Monday-Friday, 8:30 am- 5:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Parker can be reached on (571) 272-2298. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joseph Nguyen

Patent Examiner

January 10, 2008.



KENNETH PARKER  
SUPERVISORY PATENT EXAMINER